

WHAT IS CLAIMED IS:

1. An in-plane switching mode liquid crystal display (LCD), comprising:
 - a first substrate having a switching element;
 - a second substrate;
 - a first electrode and a second electrode on the first substrate;
 - a transparent electrode asymmetrically overlapping the first electrode; and
 - a liquid crystal layer between the first substrate and the second substrate.
2. The in-plane switching mode LCD as claimed in claim 1, wherein the first electrode is a common electrode and the second electrode is a data electrode.
3. The in-plane switching mode LCD as claimed in claim 1, wherein the switching device is a transistor including:
 - a gate electrode on the first substrate;
 - a gate insulating layer on the gate electrode and the first substrate;
 - a semiconductor layer on the gate insulating layer; and
 - source and drain electrodes on the semiconductor layer.
4. The in-plane switching mode LCD as claimed in claim 1, wherein the switching device is a transistor including a gate electrode, a source electrode and a drain electrode.

5. The in-plane switching mode LCD as claimed in claim 4, wherein the transistor includes a gate insulating film on the first substrate and the first electrode, the second electrode being formed on the gate insulating film.
6. The in-plane switching mode LCD as claimed in claim 5, wherein the gate insulating film is formed on the gate electrode and the gate electrode is on the same layer as the first electrode.
7. The in-plane switching mode LCD as claimed in claim 1, further comprising a protection film between the transparent electrode and the second electrode and wherein the first electrode, the second electrode and the transparent electrode are all on different layers.
8. The in-plane switching mode LCD as claimed in claim 1, further comprising a shielding electrode on the second substrate, the first and second electrodes and the shielding electrode forming a tilted electric field.
9. The in-plane switching mode LCD as claimed in claim 8, wherein the shielding electrode is a black matrix.
10. The in-plane switching mode LCD as claimed in claim 8, wherein the shielding electrode

includes chrome(Cr).

11. The in-plane switching mode LCD as claimed in claim 1, wherein the transparent electrode shields an electric field between the second electrode and a data line.
12. The in-plane switching mode LCD as claimed in claim 1, wherein the transparent electrode includes ITO.
13. The in-plane switching mode LCD as claimed in claim 1, wherein the first electrode has an outmost portion and the transparent electrode is asymmetrical with respect to the outmost portion of the first electrode.
14. An in-plane switching mode liquid crystal display comprising:
 - a first substrate having a switching element;
 - a second substrate;
 - a plurality of first electrodes including an outmost first electrode on the first substrate;
 - a plurality of second electrodes on the first substrate;
 - a gate insulating film, a protection film, and a transparent film sequentially stacked on the outmost first electrode, wherein the transparent film at least partially covers the outmost first electrode; and

a liquid crystal layer between the first substrate and the second substrate.

15. The in-plane switching mode LCD as claimed in claim 14, wherein the first electrodes and the second electrodes are on planes different from each other.
16. The in-plane switching mode LCD as claimed in claim 15, wherein the second electrodes are on the gate insulating film.
17. The in-plane switching mode LCD as claimed in claim 14, wherein the transparent film includes indium tin oxide (ITO).
18. The in-plane switching mode LCD as claimed in claim 14, further comprising a shielding electrode on the second substrate, wherein the shielding electrode forms a tilted electric field together with the first and second electrodes.
19. The in-plane switching mode LCD as claimed in claim 14, wherein the transparent film shields an electric field between the second electrode and a data line.
20. An in-plane switching mode liquid crystal display device comprising:
a first substrate having a switching element;

a second substrate;

a first electrode on the first substrate;

a gate insulating film on an entire surface of the first substrate including the first electrode;

a second electrode on the gate insulating film, the second electrode forming an in-plane electric field together with the first electrode;

a protection film on the first electrode and the second electrode;

an asymmetric transparent electrode on the protection film; and

a liquid crystal layer between the first substrate and the second substrate.

21. The in-plane switching mode liquid crystal display device as claimed in claim 20, further comprising a shielding electrode on the second substrate, wherein the shielding electrode forms a tilted electric field together with the first electrode and the second electrode.

22. The in-plane switching mode liquid crystal display device as claimed in claim 21, wherein the shielding electrode is a black matrix.

23. The in-plane switching mode liquid crystal display device as claimed in claim 21, wherein the black matrix is a Cr.

24. The in-plane switching mode liquid crystal display device as claimed in claim 20, wherein the first electrode is a common electrode and the second electrode is a data electrode.
25. The in-plane switching mode liquid crystal display device as claimed in claim 20, wherein the transparent electrode includes indium tin oxide (ITO).
26. The in-plane switching mode liquid crystal display device as claimed in claim 20, wherein the common electrode has an outmost portion and the transparent electrode is on top of the outermost portion of the common electrode, the transparent electrode is asymmetrical.
27. An in-plane switching liquid crystal display (LCD) device comprising:
- a first substrate and a second substrate;
 - a thin film transistor having a gate electrode, a source electrode and a drain electrode on the first substrate;
 - a liquid crystal material between the first and second substrate;
 - a common electrode on a first portion of the first substrate;
 - a data electrode on a second portion of the first substrate; and
 - a transparent electrode over a region of the first substrate, the region including at least a portion of the common electrode.

28. The in-plane switching liquid crystal display device of claim 27, wherein the transparent electrode has a first part at a first height above the first substrate and a second part at a second height above the first substrate.

29. The in-plane switching liquid crystal display device of claim 27, wherein the first part overlaps the common electrode and the second height does not overlap the common electrode.

30. The in-plane switching liquid crystal display device of claim 29, wherein the first part of the transparent electrode is higher than the second part of the transparent electrode.

31. The in-plane switching liquid crystal display device of claim 27, further comprising a shielding electrode on the second substrate.

32. The in-plane switching liquid crystal display device of claim 31, wherein the shielding electrode is a black matrix.

33. The in-plane switching mode liquid crystal display as claimed in claim 32, wherein the black matrix is a Cr.

34. The in-plane switching mode liquid crystal display device as claimed in claim 27,

[illegible]

- [illegible]

film and spaced from the common electrode;

a protection film on the thin film transistor;

a field distorting electrode on the protection film overlapping at least a portion of the common electrode, the field distorting electrode preventing vertical crosstalk caused by the data line and the data electrode;

a black matrix on the second substrate; and

a liquid crystal material between the first and second orientation films.

37. The in-plane switching liquid crystal display device as claimed in claim 36, wherein the field distorting electrode including first and second portions.

38. The in-plane switching liquid crystal display device as claimed in claim 37, wherein the first portion overlaps the common electrode and the second portion does not overlap the common electrode.

39. The in-plane switching liquid crystal display device as claimed in claim 37, wherein the first portion is above the second portion.

40. The in-plane switching liquid crystal display device as claimed in claim 36, wherein the field-distorting electrode includes a transparent conductive material.

- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| 2 | 2 | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| 3 | 3 | 2 | 1 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| 4 | 4 | 3 | 2 | 1 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| 5 | 5 | 4 | 3 | 2 | 1 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | | | | | | | | | | | | | | | | | | | | |

comprising an overcoat layer between the color filter layer and the second orientation film.

47. The in-plane switching liquid crystal display device as claimed in claim 36, the field distorting electrode shields an electric field between the data line and the data electrode.

48. A method of manufacturing an in-plane switching liquid crystal display (LCD) device comprising:

forming a thin film transistor including:

forming a gate electrode on a first substrate;

forming a gate insulating layer on the gate electrode;

forming a semiconductor layer on the gate insulating layer; and

forming a source electrode and a drain electrode on the semiconductor layer;

forming a gate line connected to the gate electrode extending in a first direction;

forming a data line connected to one of the source and drain electrodes extending in a

second direction, the gate line and the data line defining a pixel region;

forming a common electrode on the first substrate on the same layer as the gate line and gate electrode and spaced from the gate electrode;

forming a data electrode connected to one of the source and drain electrodes on the gate insulating film and spaced from the common electrode;

forming a protection film on the thin film transistor, the common electrode and the data

electrode;

forming a field distorting electrode on the protection film overlapping at least a portion of the common electrode, the field distorting electrode preventing vertical crosstalk caused by the data line and the data electrode; and

forming a first orientation film on the protection film and the field-distorting electrode.

49. The method as claimed in claim 48, further comprising:

forming a black matrix on a second substrate;

forming a color filter layer on the second substrate;

forming a second orientation film on the color filter layer; and

forming a liquid crystal material between the first and second orientation films.

50. The method as claimed in claim 48, wherein the field distorting electrode including first and second portions.

51. The method as claimed in claim 50, wherein the first portion overlaps the common electrode and the second portion does not overlap the common electrode.

52. The method as claimed in claim 50, wherein the first portion is above the second portion.

53. The method as claimed in claim 48, wherein the field-distorting electrode includes a transparent conductive material.
54. The method as claimed in claim 52, wherein the transparent conductive material includes indium tin oxide.
55. The method as claimed in claim 48, wherein the field distorting electrode forms an electric field with the data line, the data electrode and the black matrix.
56. The method as claimed in claim 48, wherein the field distorting electrode shields an electric field between the data line and the data electrode.